

# PCG-NV170/NV170P/**NV190/NV190P**

## SERVICE MANUAL

*For American Area*

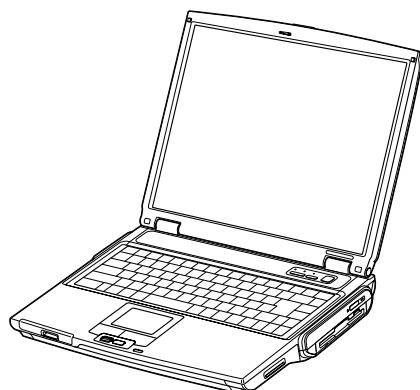
US Model

Canadian Model

Ver 7-2003I

Revision History

Lineup : PCG-NV190P  [MA]  
PCG-NV190  [MA]  
PCG-NV170P  
PCG-NV170



Illust : PCG-NV170P



- Design and specifications are subject to change without notice.

## NOTEBOOK COMPUTER

# SONY®

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**Caution Markings for Lithium/Ion Battery** - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

**CAUTION:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

**CAUTION:** The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.

Dispose of used battery promptly.

Keep away from children.

**CAUTION:** Changing the back up battery.

- Overcharging, short circuiting, reverse charging, multilatation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.



## **Service and Inspection Precautions**

### **1. Obey precautionary markings and instructions**

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

### **2. Use designated parts only**

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the  $\Delta$  mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

### **3. Always follow the original design when mounting parts and routing wires**

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

### **4. Inspect after completing service**

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

### **5. When replacing chip components...**

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

### **6. When handling flexible print boards...**

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

### **ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\Delta$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.**

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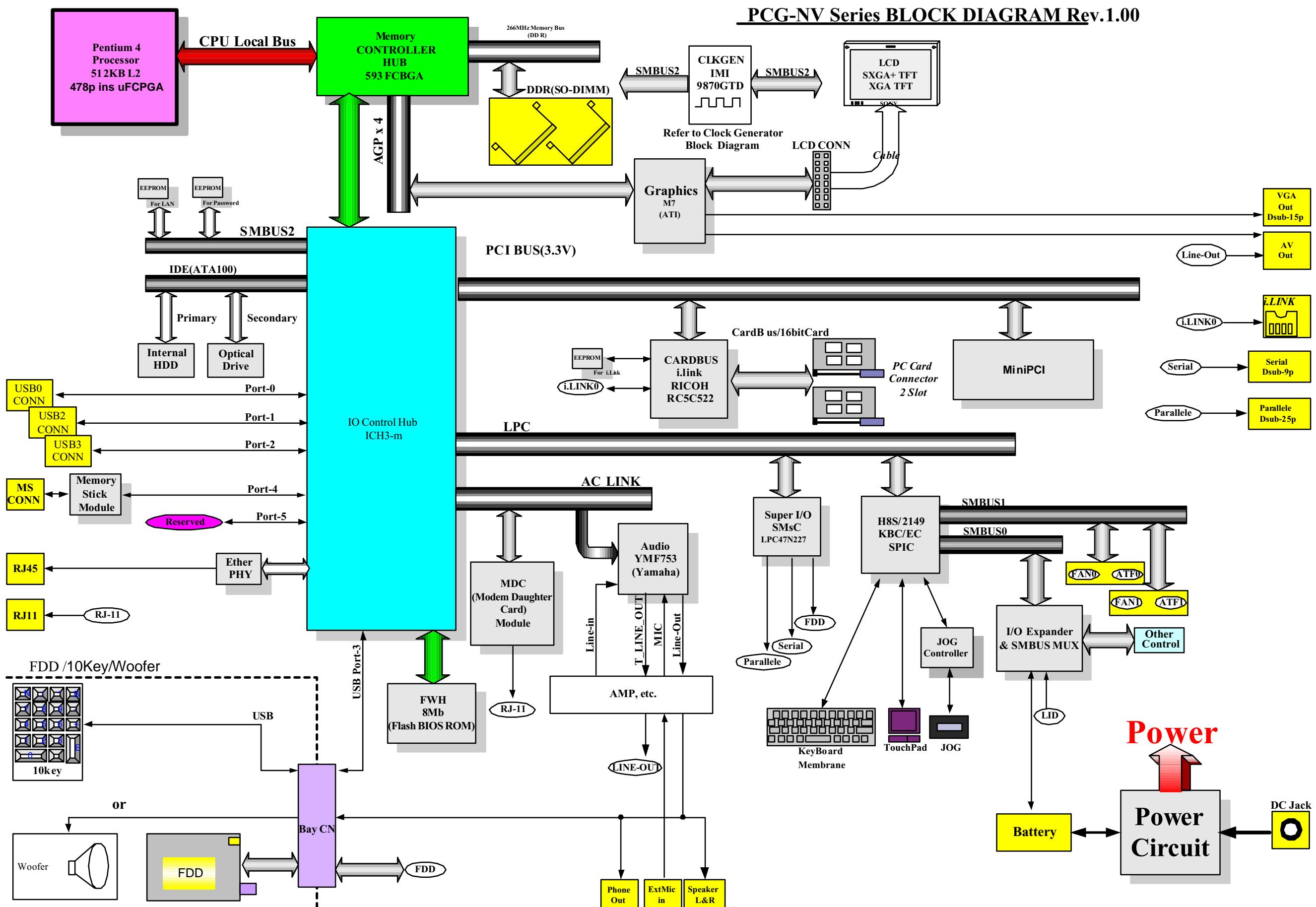
History of the changes is shown as the  
“Revision History” at the end of this data.

**Confidential**

# CHAPTER 1.

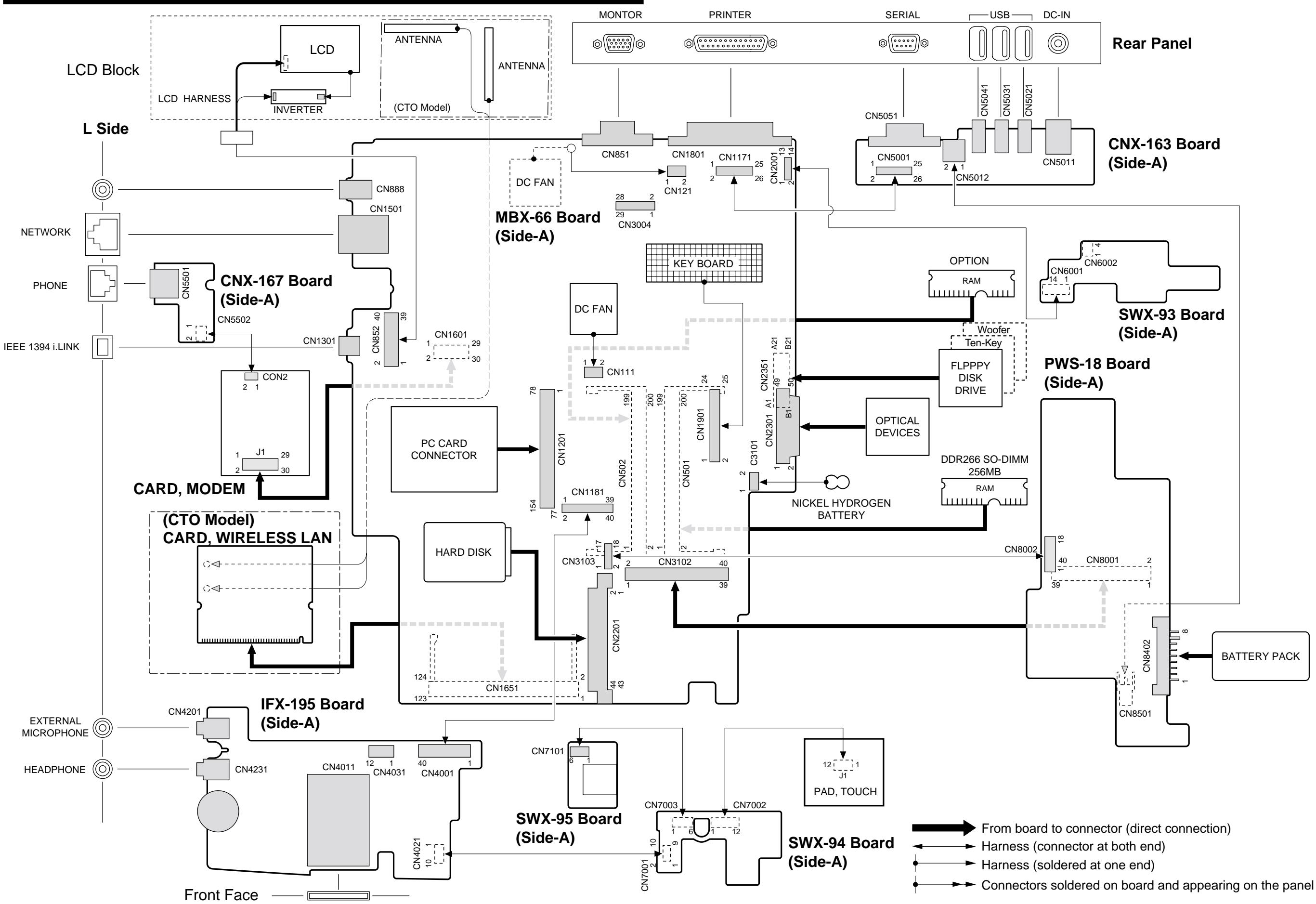
## BLOCK DIAGRAM

**PCG-NV Series BLOCK DIAGRAM Rev.1.00**



# ***CHAPTER 2.***

## ***FRAME HARNESS DIAGRAM***



- From board to connector (direct connection)
- Harness (connector at both end)
- Harness (soldered at one end)
- Connectors soldered on board and appearing on the panel

## CHAPTER 3.

### **EXPLODED VIEWS AND PARTS LIST**

#### **NOTE:**

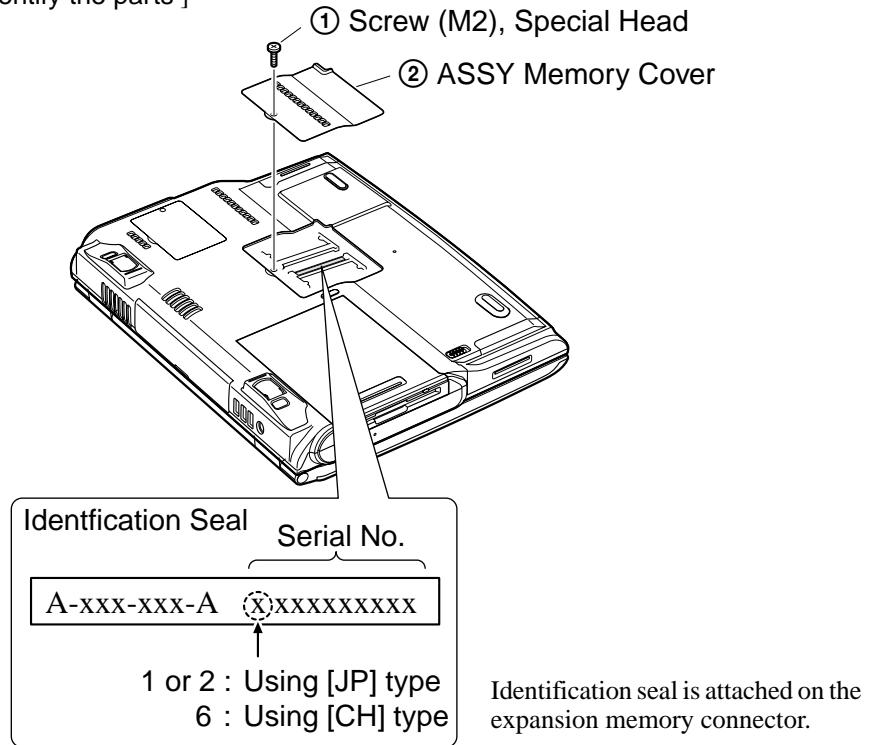
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- When two or more parts are shown in parallel, use the part described first as the main part.
- The indication [CH] is used for identification of part type.
- Regarding the boards of this model, the discrete parts on the boards cannot be replaced. However, Some connectors can be replaced.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.  
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

#### **How to use properly the repair parts.**

There are some parts that use the 2 types ; the [CH] parts or alternately the [JP] parts, in this series.  
Use the [CH] repair parts for the [CH] type product, vice versa.

##### [ How to identify the parts ]



##### [ Repair part description example ]

Ref.No.	Part No.	Description
---------	----------	-------------

999	A-8110-582-A	[CH]...MBX-66 ASSY (C) (S)
999	4-8067-424-A	[JP]...MBX-66 ASSY (S)

\*About Repair level of mounted board.

JP type... Component level service is possible. Refer to this manual for details.

CH type... Do not execute the component level service in principle.

However, some of the connectors can be repaired by the component level service.

Refer to “Connector Section” of this manual for details.

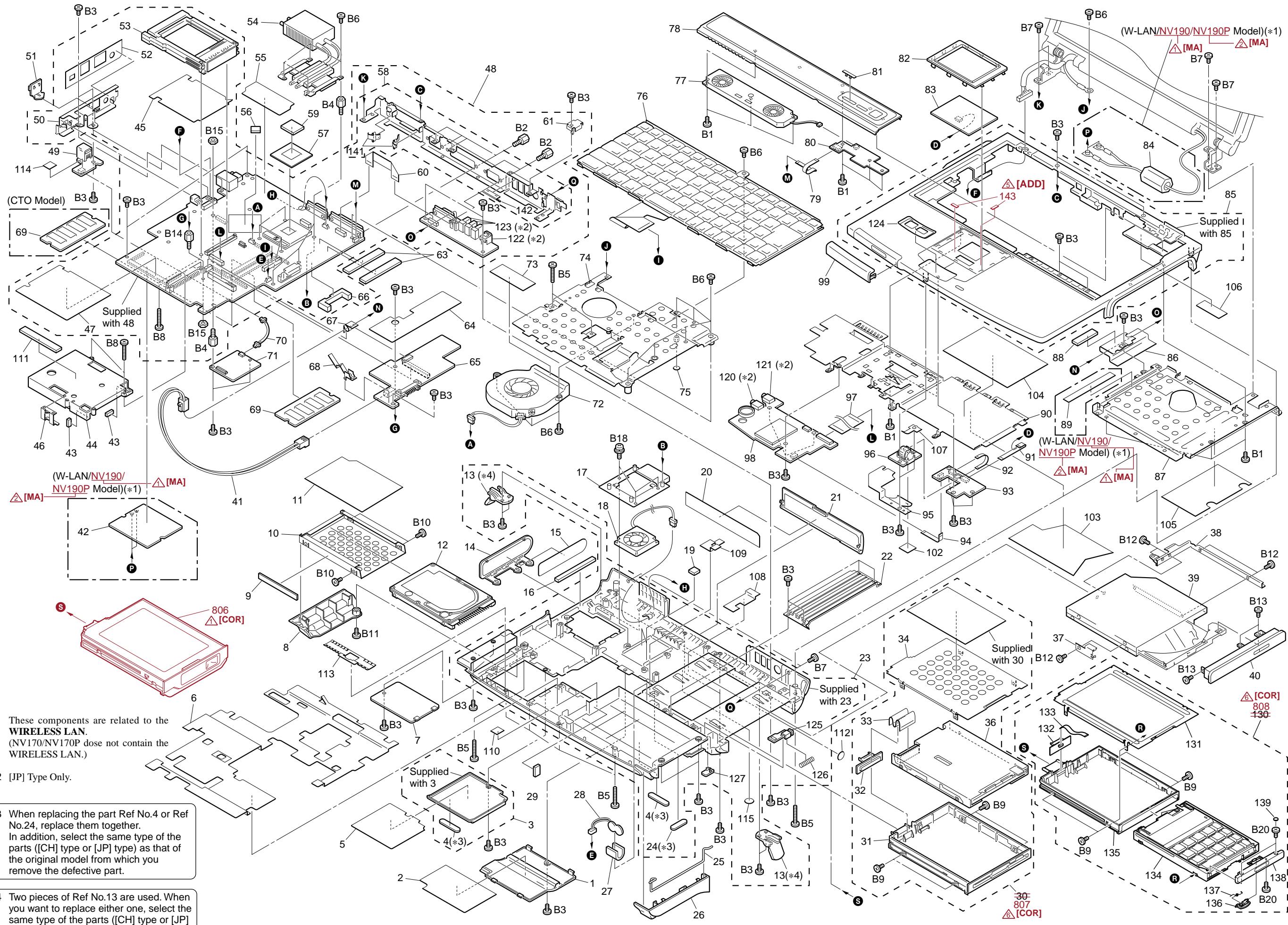
**Confidential**

### 3-1. Main Section

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	
1	X-4624-632-2	ASSY MEMORY COVER	56	4-662-684-01	THREMAL SHEET NORTH	106	4-665-228-01	SPACER PRH	137	4-661-129-01	BAY K SPRING	
2	4-662-679-01	INSULATOR MEMORY COVER	57	6-702-111-01	(NV170/NV170P)...IC RH80532GC025512 (Pentium 4-M 1.6GHz)	107	4-665-728-01	COPPER TAPE JOG	138	4-661-134-01	BAY K BEZEL	
3	X-4624-633-2	ASSY MINI PCI COVER	57	6-702-112-01	(CTO/NV190/NV190P)... IC RH80532GC029512 (Pentium 4-M 1.7GHz)	108	4-665-016-01	COPPER TAPE BOTTOM A	139	4-662-551-01	BAY K COVER	
4	4-661-307-01	[JP]...FOOT FRONT (*3)				109	4-665-017-01	COPPER TAPE BOTTOM B	141	4-662-379-01	FIN GND	
4	4-661-307-11	[CH]...FOOT FRONT (*3)				110	4-665-018-01	COPPER TAPE BOTTOM C	142	4-662-378-01	USB GND	
5	4-662-680-01	INSULATOR MINI PCI	58	X-4624-710-2	I/O BRACKET ASSY	111	4-665-022-01	CUSHION HDD GUIDE TOP	B1	4-665-205-01	SPECIAL FLAT HEAD (EG GRIP), M2	
6	4-661-671-02	INSULATOR BOTTOM	59	4-660-835-01	THERMAL SHEET CPU	112	4-665-023-01	CUSHION BOTTOM B	B2	4-635-966-01	SCREW (HEX)	
7	4-661-164-11	MODEM COVER	60	1-824-072-21	FFC (26PIN)	113	X-4625-033-1	ASSY FINGER HDD	B3	4-641-726-12	SCREW (M2), SPECIAL HEAD	
8	4-661-113-01	HDD DOOR	* 61	4-654-119-11	PLATE (DC)	114	4-656-131-01	SHEET MODEM	B4	4-661-107-01	STAND OFF M2X5	
9	4-664-566-01	CUSHION HDD BRACKET F	63	4-662-685-01	THERMAL SHEET PW	115	4-641-630-21	COVER BAY HOLE	B5	4-644-637-42	GRIP, M2 EG	
* 10	4-653-799-02	BRACKET HDD	64	4-661-674-02	INSULATOR PWS	120	1-695-514-21	[JP]...JACK (SMALL TYPE) 1P	B6	4-642-852-21	+B M2	
11	4-653-801-02	SHEET HDD	65	A-8067-249-A	[JP]...COMPLETE PWB PWS-18	121	1-793-162-11	[JP]...JACK, SMALL TYPE	B7	4-662-693-03	GRIP M2.6 S-HEAD (EG)	
12	A-8059-344-A	(NV170/NV170P/NV190/NV190P)... ASSY HDD 30GB (T,20,F) (S)	65	A-8110-585-A	[CH]...ASSY PWS-18(C)(S)	122	1-779-745-21	[JP]...JACK, DC	B8	4-644-637-32	GRIP, M2 EG	
12	A-8059-136-A	(CTO)...ASSY HDD 40GB (H,20) (S)	66	4-662-537-01	BLIND FDD	123	1-815-422-12	[JP]...CONNECTOR, USB (A)	B9	4-646-807-11	O PLATE M2.5 (FDD)	
13	X-4624-638-2	[JP]...ASSY FOOT REAR (*4)	67	1-823-101-11	CABLE, FLEXIBLE FLAT	124	4-661-173-02	JOG BEZEL	B10	4-635-301-01	SCREW M3X4	
13	X-4624-761-1	[CH]...ASSY FOOT REAR (*4)	68	X-4624-635-1	ASSY LATCH DETECTOR	125	4-661-088-01	FDD LATCH LEVER	B11	4-654-811-01	SCREW M3	
14	X-4624-634-2	ASSY SIDE I/O DOOR	69	6-600-080-01	IC M470L3224BT0-CB0 (DDR266 SO-DIMM 256MB)	126	4-661-090-01	FDD LATCH SPRING	B12	4-652-498-01	+B M2 (NOJI)	
15	4-662-543-01	LABEL SIDE I/O	69	6-600-116-01	IC M470L3224DT0-CB0 (DDR226 SO-DIMM 256MB)	127	4-661-093-02	FDD LATCH BUTTON	B13	4-645-177-01	SCREW (M1.7X3.5)	
16	4-663-865-02	CUSHION SIDE I/O	70	1-960-827-61	HARNESS (2 PIN)	130	A-8059-514-A	ASSY BAY KEY [COR]	B14	4-661-159-01	STAND OFF M2X8.5	
* 17	X-4624-741-1	ASSY 2ND FAN GUIDE	71	1-761-380-23	CARD, MODEM	131	4-661-125-01	BAY K TOP BRACKET	B15	7-622-205-05	NUT M2 TYPE2	
18	1-763-843-11	FAN, DC (SECOND)	72	1-763-842-11	FAN, DC (CPU)	132	1-816-577-11	CONNECTOR, BAY 4P 1MM	B18	4-665-648-01	SCREW M2 EG GRIP WASHER	
19	4-662-704-01	SHEET 2ND FAN	73	4-664-521-01	SHEET FF	133	1-824-587-11	FFC (4P)	B20	4-639-112-01	SCREW M2X4	
20	4-662-542-01	LABEL I/O	* 74	X-4624-727-1	PALMREST BRACKET L ASSY	134	1-477-344-11	KEY UNIT, 10	△ [ADD]			
21	4-661-116-02	I/O DOOR	75	4-664-050-01	SHEET SUPPORT SCREW	135	4-661-127-02	BAY K BOTTOM	B19	4-666-474-01	NUMBER 0 SPECIAL HEAD M2.6	
* 22	4-661-111-01	SUPPORT BRACKET	76	1-477-230-11	KEY BOARD UNIT (U)	136	4-661-128-01	BAY K FOOT				
23	X-4624-631-2	ASSY BOTTOM HOUSING	77	1-825-142-11	INTERNAL SPEAKER (2230)				△ [ADD]			
24	4-662-375-01	[JP]...FOOT CENTER (*3)	78	X-4624-637-2	ASSY HOOD KEYBOARD				143	4-657-284-01	ADHESIVE TAPE (PALM)	
24	4-662-375-11	[CH]...FOOT CENTER (*3)	79	1-824-072-31	FFC (14PIN)							
25	4-661-112-01	BATT DOOR LINK	80	A-8067-243-A	[JP]...COMPLETE PWB SWX-93							
26	4-661-115-02	BATT DOOR	80	A-8110-586-A	[CH]...ASSY SWX-93(C)(S)							
27	4-664-311-02	BATT CUSHION -01	81	4-661-171-12	(W-LAN/NV190/NV190P)...W-LAN SWITCH [MA]							
28	1-756-038-11	BATTERY, NICKEL HYDROGEN	82	4-661-172-02	TP BEZEL							
29	4-664-565-01	CUSHION BOTTOM C	83	1-796-319-21	PAD, TOUCH							
30	A-8059-969-A	ASSY BAY FD (TE)	84	1-400-255-11	(W-LAN/NV190/NV190P)...FERRITE CORE							
31	X-4624-627-2	ASSY FDD BOTTOM	* 85	X-4624-636-1	ASSY PALMREST HOUSING							
32	1-816-578-11	CONNECTOR, BAY 26P 1M	* 86	4-662-681-01	HEAT SINK PW							
33	1-824-587-21	FFC (26PIN)	* 87	X-4624-728-2	PALMREST BRACKET R ASSY							
34	4-661-092-01	FDD TOP BRACKET	88	4-662-686-01	THERMAL SHEET HS-PW							
36	1-796-231-21	FDD (FD-07-7760)	89	4-663-780-01	(W-LAN/NV190/NV190P)... PALMREST BRACKET R TAPE							
37	4-661-087-02	GROUND PLATE C(PA)	* 90	4-661-120-01	TOUCHPAD BRACKET							
* 38	4-661-091-11	BRACKET C	91	1-823-813-11	CABLE, FLEXIBLE FLAT 12P							
39	1-796-455-11	COMBO DRIVE (UJDA730)	92	1-824-072-71	FFC (6PIN)							
40	X-4624-626-1	ASSY CD-ROM BEZEL	93	A-8067-245-A	[JP]...COMPLETE PWB SWX-94							
41	1-961-764-11	HARNESS (DC)	93	A-8110-587-A	[CH]...ASSY SWX-94(C)(S)							
42	1-761-564-11	(W-LAN/NV190/NV190P)... WIRELESS LAN CARD	* 94	1-824-072-51	FFC (10PIN)							
43	4-664-567-01	CUSHION HDD GUIDE	* 95	4-664-347-01	JOG PLATE							
44	4-661-110-02	HDD GUIDE	96	A-8067-247-A	[JP]...COMPLETE PWB SWX-95							
45	4-661-673-01	INSULATOR PC-CARD	96	A-8110-588-A	[CH]...ASSY SWX-95(C)(S)							
* 46	4-661-167-01	HDD SUPPORT GROUNDING	97	1-824-072-11	FFC (40PIN)							
47	4-661-672-02	INSULATOR HDD	98	A-8067-251-A	COMPLETE PWB IFX-195							
48	A-8067-424-A	[JP]...ASSY MBX-66 (S)	99	4-661-551-22	(W-LAN/NV190/NV190P)...LENS COVER							
48	A-8110-582-A	[CH]...ASSY MBX-66(C)(S)	100	4-661-551-32	(NV170/NV170P)...LENS COVER							
49	A-8067-240-A	[JP]...COMPLETE PWB CNX-167	101	4-664-312-01	SHEET JOG							
49	A-8110-584-A	[CH]...ASSY CNX-167(C)(S)	102	4-665-113-01	SHEET TP-BRACKET BT							
50	X-4624-725-1	SIDE I/O BRACKET ASSY	103	4-665-226-01	SPACER TPB							
51	4-661-163-01	LAN DOOR	104	4-665-227-02	SPACER TBR							
52	4-662-544-01	SHEET SIDE I/O										
53	1-816-371-11	CONNECTOR, PC CARD(EJECT,RIGHT)										
54	4-661-151-01	HEAT SINK										
55	4-663-030-01	INSULATOR FIN										

\*3 When replacing the part Ref No.4 or Ref No.24, replace them together.  
In addition, select the same type of the parts ([CH] type or [JP] type) as that of the original model from which you remove the defective part.

\*4 Two pieces of Ref No.13 are used. When you want to replace either one, select the same type of the parts ([CH] type or [JP] type) as you should replace both in the right and left.



\*1 These components are related to the **WIRELESS LAN**.

(NV170/NV170P dose not contain the WIRELESS LAN.)

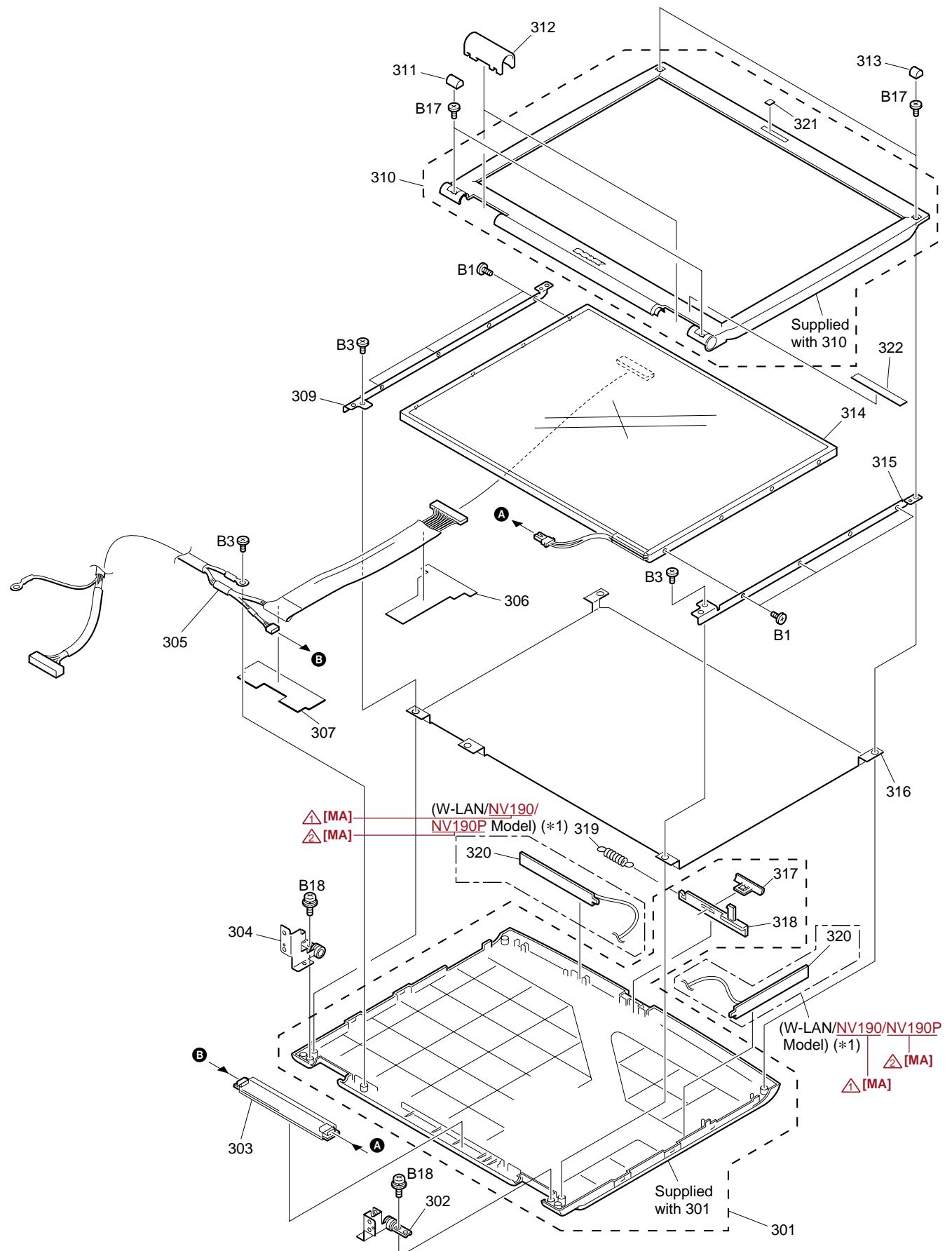
\*2 [JP] Type Only.

\*3 When replacing the part Ref No.4 or Ref No.24, replace them together.

In addition, select the same type of the parts ([CH] type or [JP] type) as that of the original model from which you remove the defective part.

\*4 Two pieces of Ref No.13 are used. When you want to replace either one, select the same type of the parts ([CH] type or [JP] type) as you should replace both in the right and left.

## **3-2. LCD Section (NV170/NV170P/NV190/NV190P Model)**



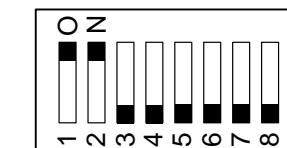
<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>
301	X-4624-630-2	ASSY DISPLAY HOUSING
302	X-4624-798-2	HINGE 15R
303	1-476-316-31	INVERTER UNIT
304	X-4624-799-1	HINGE 15L
305	1-961-756-12	LCD HARNESS
306	4-664-943-02	COPPER TAPE LCD CON
307	4-664-944-01	COPPER TAPE LCD ED
309	4-664-977-01	LCD-15 BRACKET L2
310	X-4624-629-2	ASSY LCD BEZEL-15
311	4-661-297-01	CUSHION HINGE
312	4-661-135-01	HINGE COVER
313	4-661-296-02	CUSHION LCD
314	A-8058-187-A	(NV170/NV170P/ <b>NV190</b> /N
MAJ		
314	A-8110-284-A	LCD15SXGA-S (S) (CTO)...ASSY LCD 15TO
315	4-664-978-02	LCD-15 BRACKET R2
316	4-661-101-01	LCD SHIELDING
317	4-661-548-01	LCD HOOK KNOB
318	4-661-157-02	LCD HOOK
319	4-661-158-01	LATCH SPRING
320	1-754-242-11	(W-LAN/ <b>NV190/NV190P</b> ). ANTENNA (1/2 LAMBDA)
321	4-661-298-02	CUSHION LATCH
322	4-663-627-31	(NV170)...LABEL ID (U)
322	4-663-627-41	(NV170P)...LABEL ID (U)
	4-665-182-11	(CTO)...LABEL ID (U/C)
322	4-663-627-51	( <b>NV190</b> )...LABEL ID (U)
322	4-663-627-61	( <b>NV190P</b> )...LABEL ID (U)
B1	4-665-205-01	SPECIAL FLAT HEAD (EG)
B3	4-641-726-12	SCREW (M2), SPECIAL H
B17	4-641-726-41	SCREW (M2), SPECIAL H
B18	4-665-648-01	SCREW M2 EG GRIP WASH

\*1 These components are related to the **WIRELESS LAN**.  
(NV170/NV170P does not contain the **WIRELESS LAN**.)  
Installation positions of the antenna and connectors are  
specified depending on the colors of the lead wires.

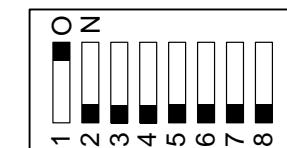
**NOTE :**

Set the DIP switch on the MBX-66 board (Main board) to match with the LCD that is used in this computer.

A-8058-187-A



A-8110-284-A



The upper position where ON indication is shown is the ON position . The lower position is the OFF position.

A-8058-187-A

A-8110-284-A

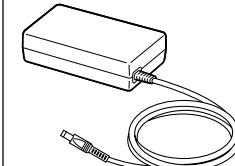
No.	1	2	3	4	5	6	7	8
ON/OFF	0	1	1	1	1	1	1	1
	0 : ON	1 : OFF						

**NOTE :**

For the parts used in the CTO model, refer to the separate service documents.

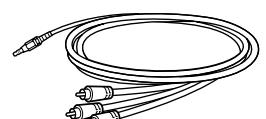
<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>
ACCESSORIES		
*****		
△801	1-477-205-31	ADAPTOR, AC
802	1-756-269-11	BATTERY PACK, LITHIUM ION
△803	1-757-562-21	CORD, POWER
804	1-765-080-32	CORD, CONNECTION
805	A-8059-693-A	WEIGHT SAVER ASSY
806	A-8059-753-A	WOOFER BAY ASSY
807	A-8059-969-A	ASSY BAY FD(TE) <span style="color: red;">[COR]</span>
808	A-8059-514-A	ASSY BAY KEY <span style="color: red;">[COR]</span>
	4-664-918-01	QUICK START, 223U

**801**  
AC Adaptor (1)



## **804**

### Cord Connection (1)



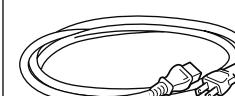
**802**  
Battery Pack (1)



**805**  
Weight Saver (1)



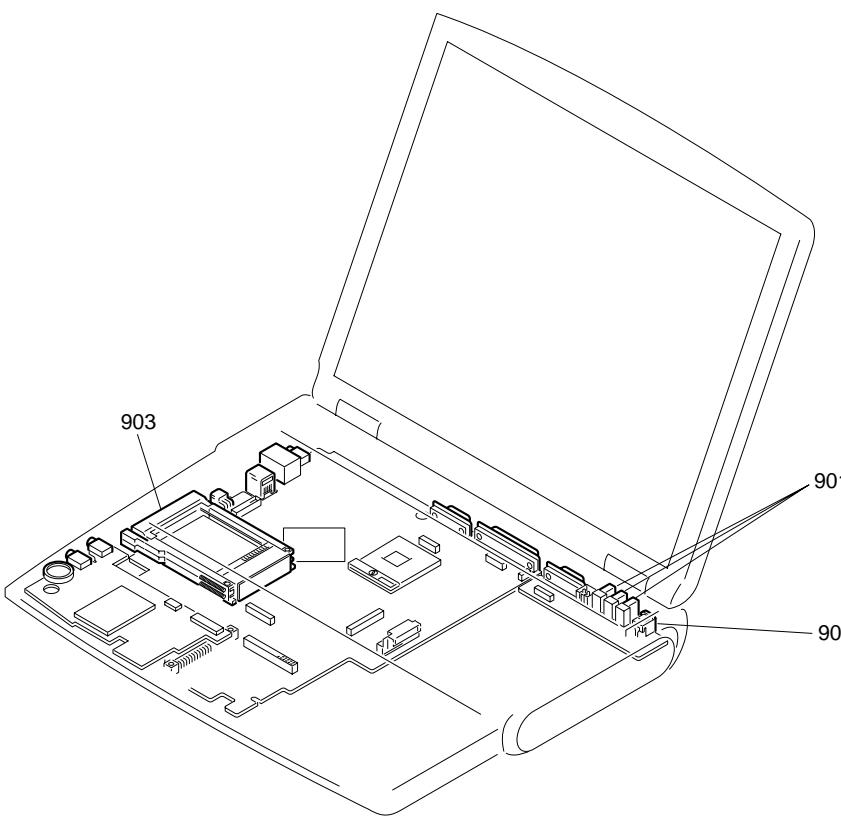
**803**  
Power Cord (1)



The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

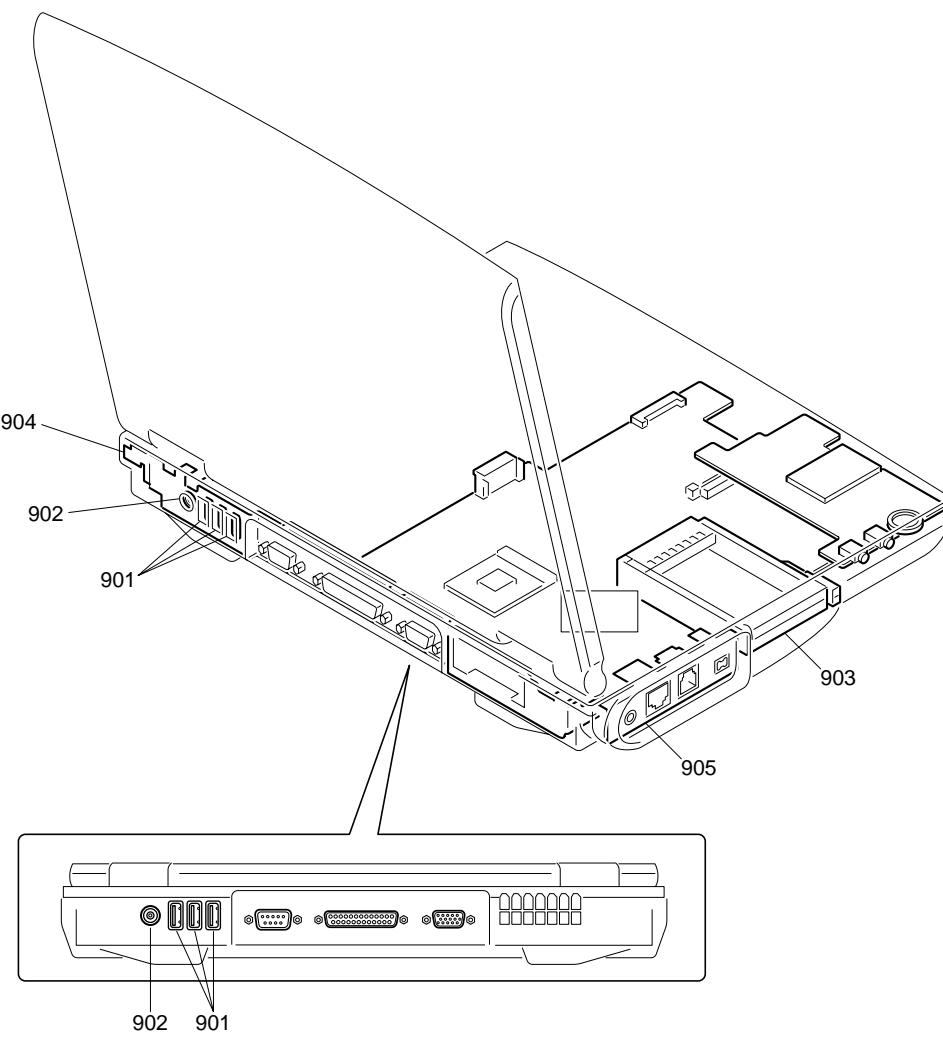
Les composants identifiés par une marque  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié

### 3-3. Connector Section (CH Type only)



Ref.No.	Fig.	Part No.	Description
901		1-815-422-12 [CH]...CONNECTOR, USB (A)	USB connector
902		1-779-745-21 [CH]...JACK, DC	DC IN connector
903		1-816-371-11 [CH]...CONNECTOR, PC CARD (EJEC,RIGHT)	PC Cord Slot connector
904		X-4624-710-1 [CH]...I/O BRACKET ASSY	I/O Bracket
905		X-4624-725-1 [CH]...SIDE I/O BRACKET ASSY	Side I/O Bracket

\* Among the parts that are used on the boards of this model, only the connectors that are show in the list can be replaced.  
(The parts other than the specified connectors cannot be replaced.)





PCG-NV170/NV170P/**NV190/NV190P** (AM)

## List of PCG-NV Series (As of September, 2003)

Model Name	Service Manual Part No.
PCG-NV170P	
PCG-NV170	
PCG-NV190	9-874-535-07
PCG-NV190P	

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## Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2002.05.22	First Edition	
-02	Ver. 2	2002.07.01	 <b>Front Page (Model Line Up), Page 3-3, Page 3-5, Page 3-6, Page 3-7, Page 3-8, Back Cover</b>	N2002_065K
-03	Ver. 3	2002.07.26	 <b>Front Page (Model Line Up), Page 3-3, Page 3-5, Page 3-6, Page 3-7, Page 3-8, Back Cover</b>	N2002_073K
-04	Ver. 4	2002.09.30	 <b>Page 3-3</b>	N2002_097K
-05	Ver. 5	2002.09.30	 <b>Page 3-3, Page 3-6</b>	N2002_098K
-06	Ver. 6	2002.10.10	 <b>Page 3-4, Page 3-6</b>	N2002_127CK
-07	Ver. 7	2003.08.22	 <b>Page 3-3, Page 3-4, Page 3-5, Page 3-8</b>	N2003_060CK
			< Remarks >	